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NPIC/T&SG/DED-1607-69

7 May 69

MEMORANDUM FOR: Deputy Director for Intelligence

SUBJECT : Request for Approval for the Extension of a Contract for the Development of the Dry Photographic Process

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1. This memorandum requests approval for the commitment of funds for the extension of a Research and Development contract with the The specific request is stated in Paragraph 7.

2. There has long been a need for a method at NPIC which would permit the Photo Interpreter to inexpensively reproduce imagery with a minimum of delay. The current reproduction system involves work orders, production schedules, priorities and the traditional photographic laboratory with its inherent time-consuming processing cycle. Also involved are the expensive processing and drying equipment, special darkroom plumbing facilities, and highly trained personnel.

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3. In 1964, the demonstrated a very high resolution photo sensitive material which required only heat for development and which used only 60% as much silver as conventional material. Over the ensuing period, NPIC has funded the development to the point where almost all of the requirement goals have been attained. Because of the potential application of the heat processed system has supported this development on a cost sharing basis with the Government spending two dollars of company funds to every dollar of NPIC funded research support.

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4. The proposed program extension consists of an additional effort in each of the five separate task areas currently under contract. These are keyed to the performance of both strategic collection systems and national interpretation requirements. The proposed work program is briefly described in the following paragraphs: a detailed description is contained in the proposal. Deliverable items under the program will be bi-monthly reports, sample materials and the 20" and 40" processors mentioned in Task V, below.

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GROUP 1
Excluded from automatic downgrading and declassification

Declass Review by NIMA/DOD

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Task I - Dry Silver Film - This task has already resulted in a highly useable material. The most important improvements required are increased permanence (stability after processing), speed (light required for exposure) and further improvement in antihalation qualities. Work in this area should result in: improved dimensional stability, better modulation transfer function (MTF), improved edge acutance, and should result in reduced granularity. Task I is planned for the extended period at a level of effort of approximately [redacted] At the present time, this task is being funded by [redacted] It is expected that [redacted] will continue to support Task I as the program continues. This currently is under discussion with [redacted] we have no commitment to date. NPIC is not requesting funding for Task I. It is included for information and continuity.

Task II - Dry Silver Paper - The development of this material is required to produce more efficient display and annotation bases for noting intelligence found during the interpretation process. Since development progress in this area has been very significant, the continuing level of total dry silver effort will be reduced. Still needed, however, are better gamma control in the low gamma range and improved permanence. Work is also programmed for improved grain and edge sharpness. The extended level of effort planned for Task II will cost approximately [redacted]

Task III - Dry Silver Positive Acting Film - Since the photo interpreter usually works with positive images on film, it is necessary that reproduction systems furnished for his direct use be capable of reproduction with the same polarity (positive-to-positive) as the original. An additional use for this material would be the ability to reduce the number of reproductions by making a duplicate positive from a positive, or a duplicate negative from a negative, with a resultant savings in resolution and the deletion of useless intermediate reproductions.

This program will support improvement in the areas of increased resolution and antihalation chemistry, as well as the possible development of a true "dual acting" material which could be processed either as a negative or a positive. Task III is planned at a level of effort costing approximately [redacted]

Task IV - Dry Diazo Film and Paper - Developments concerning this task have progressed to the point where most of the required goals have been met. No additional Government funding is required. However, the task has been retained and is included for reference. This material will be produced in quantity, with adequate quality control, and will be produced in quantity, with adequate quality control and will be available in the near future.

Task V - Sheet Processor - Despite the fact that various Roll-Film processors have been successfully developed and are operating at the present

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time, no completely successful sheet film and paper processor has yet been produced. The basic problem is that the transport system affects the heat transfer characteristics of the process with a consequent effect on the development of the material being processed. Task V proposes the assembly of a prototype 12"-20" air cushion system for processing paper and/or film sheet and chip material and the fabrication of segmented 40" wide paper processor for the purpose of processing enlargements. Task V will cost approximately [redacted]

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5. As previously mentioned, the Dry Process Photographic project described above is a continuation of a successful development program with the [redacted] The previous contracts in FY-64 thru FY-68 were each on a 12-month fiscal year to fiscal year basis. The current FY-69 contract runs to October 1969, however, and this proposal extends the program an additional eight months' period to 30 June 1970. If continuation of the program is required, funding would be in the first quarter of FY-71.

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The amount of [redacted] has already been obligated from FY-69 funds for the present effort. The additional [redacted] required for the proposed extension will amount to a total FY-69 commitment of [redacted] These additional funds will be made available by deferring several R&D projects originally scheduled for FY-69. Better contractor personnel utilization and an overall increased program efficiency can result from the extended funding and longer range planning.

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The total cost of these tasks is as follows:

Task I	[redacted]
Task II	
Task III	
Task IV	
Task V	
TOTAL	

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This project is fully coordinated with the intelligence community through EXRAND. The financial support of Task I by [redacted] is an excellent example of the results of community-wide coordination of this development. In addition, coordination on a continuing basis is being maintained with other Army, Navy, Air Force, and Agency components having a known interest in dry silver projects.

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6. Both equipment and reports are called for as deliverable items. Interim monthly reports and a final report with film and paper samples are to be delivered. Additionally, a twelve inch air cushion sheet and chip processor and a fourty inch wide hot shoe processor for paper enlargements are due for delivery by 30 June 1970.

7. Successful completion of this proposed research program is expected to provide a solution to most of the basic development problems with the possible exception of photographic speed. However, considerably more research work is expected to be necessary before the goals set for positive acting material (Task III) have been attained. Additional funding for FY-71 and possibly FY-72 will be considerably less since only one major task will need research support.

8. The development of the Dry Silver heat processed, photo reproduction system promises to have substantial ramifications upon NPIC operation. It is, however, recommended that this proposal be approved for additional FY-69 funds at the budgetary level of [redacted] plus 5% (if needed) to provide for possible changes in labor and overhead rates which may be encountered by the Agency negotiator during the negotiation process--for a total of [redacted]

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ARTHUR C. LUNDAHL
Director
National Photographic Interpretation Center

Attachments (2)
1. Catalog Form
2. Proposal

APPROVED: [redacted] Date

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Deputy Director for Intelligence

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25X1 APPROVED: [redacted]

Date

Lieutenant General, USMC
Deputy Director of Central Intelligence

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